

REMARKS

Upon entry of the present Amendment-D the claims in the application are claims 1-13 and 15-20, of which claims 1, 3 and 15 are independent, and of which claims 3, 6-7, 9 and 12 are withdrawn from consideration as being drawn to a non-elected specie.

Independent claims 1, 3 and 15 have been amended to further define that the nozzle discharges coating liquids such that the coating liquids are dropped onto the substrate surface, and that the predetermined width of the slit-like opening in the nozzle is great.

Applicant respectfully submits that all of the above amendments are fully supported by the original disclosure, including the drawings and the discussion of slit-like nozzles and discharge of resist coating liquids from nozzles in the Background section of the application. Applicant also respectfully submits that the above amendments do not introduce any impermissible “new matter” into the application.

Response to Objections and Rejections Presented In Office Action

The above-identified Office Action has been reviewed, the references carefully considered, and the Examiner's comments carefully weighed. In view thereof, the present Amendment is submitted. It is contended that by the present amendment, all bases of rejection set forth in the Office Action have been traversed and overcome. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

Claim Objections

On page 2 of the Office Action, the Examiner states that while claim 1 includes a positive recitation of the nozzle, it is suggested that claim 15 be amended to positively recite the nozzle in the body of the claim rather than in the preamble of the claim for clarity purposes.

Applicant's Response

Applicant has carefully considered the Examiner's objection and respectfully traverses such objection since claim 15 clearly and affirmatively recites a cleaning apparatus for a nozzle having an elongate slit-like discharge opening ..., and properly presents limitations of the cleaning apparatus as being "adapted to" function relative to the slit nozzle. As recognized by the Examiner, there is no requirement that the nozzle be positively recited in combination with the cleaning apparatus, especially given that claim 1 is already directed to the combination.

Applicant respectfully submits that the Examiner's objection is overcome and, as such, respectfully requests reconsideration and withdrawal thereof.

Claim Rejections – 35 USC 103

At pages 3-10 of the Office Action, the Examiner has presented several rejections of claims 1, 2, 4, 5, 8, 10, 11, and 13, 14 and 20 under 35 USC §103(a) as being unpatentable over Zehner (US Patent App. Pub. 2003/0127046 A1) et al. in view of Eriksson (US 6,321,688) and Ichinose (US 4,830,882), and for some further in view of one or both of Tsutsumi (US 6,549,457) and Batchelder (US 2,164,433). Further, the Examiner has presented several rejections of claims 15-19 under 35 USC §103(a) as being unpatentable over Zehner in view of Eriksson and Tanaka (US 6,241,827), and for some further in view of one or both of Tsutsumi (US 6,549,457) and Batchelder (US 2,164,433). These rejections are similar to the rejections regarding Zehner, Tsutsumi, Batchelder and Eriksson as presented against claims 1, 2, 4, 5, 8, 10, 11 and 13-19 in the last Office Action, but the Examiner further relies on the Ichinose reference relative to its alleged disclosure of a "slit nozzle", and relies on the Tanaka reference relative to its disclosure of an overflowing cleaning tank and a drain for recycling overflowed cleaning solution .

Additionally, at pages 11-13 of the Office Action the Examiner also presented a “Response to Arguments” in which she addresses several of the arguments presented in the Amendment-C. The Examiner asserts that:

- 1) The Examiner argues that Tsutsumi and Batchelder are analogous art since they are, in the Examiner’s opinion, reasonably pertinent to the particular problem which the applicant was concerned. Specifically, the Examiner states that Tsutsumi is analogous art since the reference, along with the present invention, acknowledge the problem of removing residue with a rotating brush, and that it does not matter that the surfaces are different. As regards the Batchelder reference, it is the Examiner’s position that both the prior art reference and the present application deal with the problem of removing debris from rotating brushes and that it does not matter that they are used in different environments.
- 2) The conclusion of obviousness is not based upon improper hindsight but instead based only on the knowledge which was within the level of ordinary skill at the time the claimed invention was made; and
- 3) The proposed modification of Zehner with Eriksson would not make the device inoperable since one skilled in the art would be able to modify the invention of Zehner so that the solvent would not drain out as shown in the present invention. Further, the Examiner points out that the claim language does not require that the brush is completely emerged within the cleaning liquid, thus if the slot was formed in the sidewall to allow for vertical or horizontal movement and one could not find a way to prevent the solvent from draining, the slot would not extend below the existing brush shaft and the lower bristles of the brush would still be located within

the solvent.

Applicant's Response

Upon careful consideration and in light of the above amendments, applicant respectfully traverses the Examiner's rejections and submits that each of the present claims are patentably distinct over the applied references, whether considered singly or in combination, because: 1) not all of the applied references applied by the Examiner are properly considered as "analogous art" to the claimed invention; 2) the proposed modifications to Zehner's paint spray gun cleaner based on select teachings of the secondary references are improper under 35 USC 103 because the suggestions for the proposed modifications come entirely from the Examiner (guided by impermissible hindsight of applicant's disclosure), rather than from any teaching, suggestion or motivation that may be fairly gleaned from the references themselves; and 3) none of the references otherwise disclose or make obvious features now required by each of the present claims.

Relative to item 3), in addition to those prior comments/arguments presented in Amendment-C, applicant respectfully submits that none of the references cited by the Examiner teach or suggest all of the features of the independent claims, e.g. a nozzle having a slit-like discharge opening of a predetermined great width, and adapted to discharge coating liquid on a surface of a substantially planar substrate in the predetermined width, wherein the nozzle discharges coating liquids such that the coating liquids are dropped onto the substrate surface or a cylindrical long-length brush having a length substantially the same as the length of the nozzle. As reflected by the above amendments, a nozzle having a slit-like discharge opening according to the invention does not spray discharge a coating solution under high pressure onto a surface, such as the paint spraying nozzle of Ichinose, but quite differently drops coating liquids onto a planar substrate under no/low pressure,

the force of gravity, and surface tension of the coating liquid. This is a fundamental distinction between the nozzle of the invention and a the paint spraying nozzle of Ichinose, and directly pertains to the problems that are specifically addressed and overcome by the presently claimed invention (whereas none of the references of record address such problems).

Specifically, applicant respectfully submits that the Ichinose reference fails to overcome the deficiencies of the previously applied references (Zehner, Eriksson, etc.) in at least two respects: 1) he does not disclose a “slit nozzle having a slit-like discharge opening of a predetermined great width in a lower end thereof . . . adapted to discharge coating liquid on a surface of a substantially planar substrate in the predetermined width (of the nozzle opening) wherein the nozzle discharges coating liquids such that the coating liquids are dropped onto the substrate surface”; and 2) he teaches away from the use of brushes for cleaning paint discharge nozzles because he instead uses guns which spray/discharge a cleaning solution at a nozzle for cleaning same.

Regarding the first distinction, applicant respectfully submits that while Ichinose may disclose (in his Fig. 13C) a nozzle having a linear discharge opening of a predetermined width, the opening does not have “great” width, and the nozzle is not adapted to discharge coating liquid on a surface of a substantially planar substrate in the predetermined width wherein the nozzle discharges coating liquids such that the coating liquids are dropped onto the substrate surface, as required by claim 1. Rather, the nozzle 270c (S3) shown in Ichinose’s Fig. 13C is a high pressure discharge nozzle which discharges paint in a wide fan-shaped spray pattern as indicated by P3 in the drawing, while the nozzle is held at a large distance from a surface being painted . Persons of ordinary skill in the art would understand that the very small / narrow size of Ichinose’s nozzle discharge opening prevents paint from being “dropped” therefrom, but only discharged under high pressure. To any extent that the Examiner is interpreting Ichinose’s nozzle 270c(S3) as the claimed nozzle with an

elongate slit-like discharge opening, applicant respectfully submits that the Examiner's interpretation is unreasonable given the full definition of the nozzle in the claim including the above amendments, as well as the conventional understanding in the art of a nozzle having a slit-like discharge opening.

Regarding the second distinction of Ichinose, given that Ichinose teaches away from use of a brush for cleaning a paint discharge nozzle, e.g., at col. 1, lines 37-42, and instead uses a plurality of cleaning guns, he teaches away from Zenher's system and from the Examiner's proposed modification to Zehner's system. Hence, even if Zenher's cleaner system was hypothetically used to clean the nozzle 270c(S3) shown in Ichinose's Fig. 13C, the resulting combination would not achieve or make obvious the claimed invention including a nozzle having a slit-like discharge opening of a predetermined great width, and adapted to discharge coating liquid on a surface of a substantially planar substrate in the predetermined width, wherein the nozzle discharges coating liquids such that the coating liquids are dropped onto the substrate surface.

Also in relation to claim 15, applicant respectfully submits that the above amendments relating to characteristics of the cleaning tank are not disclosed or suggested by any reference of record.

Relative to items 1), 2) and the rejections of claims involving the Tanaka reference, in addition to the prior comments / arguments made in Amendment-C relative to the Zenher, Eriksson, Batchelder and Tsutsumi, applicant respectfully submits that the Tanaka is not properly considered as "analogous" prior art to the claimed invention because: 1) it does not pertain to the same field of endeavor (cleaning of slit-like nozzles used for discharging coating solutions onto planar substrates); and 2) it is not reasonably pertinent to the problem addressed by the present invention (problems of conventional brush-based systems for cleaning slit-like nozzles). Instead, Tanaka discloses a semiconductor cleaning system which does not involve a brush, but instead involves an open-topped cleaning tank in which a plurality of wafers are fully immersed, a cleaning solvent is supplied into

the tank such that it overflows carrying with it contamination particles that were on the wafers, is filtered and reused. Tanaka, like Ichinose, teaches away from the claimed invention and the Examiner's proposed modifications of Zehner's system.

As such, applicant respectfully submits that persons of ordinary skill in the art would not consider the proposed modification to Zehner based on select features of Tanaka to be obvious because: these persons would not have (in the first instance) looked to Tanaka because it is non-analogous art; and Tanaka's system features are incompatible with Zehner's system for reasons similar to those previously discussed in relation to Eriksson. As such, respectfully submits that the Examiner's rejections are based on impermissible hindsight of the present application, rather than from any appropriate motivation derived from the evidence of record.

Relative to item 2), in addition to the arguments presented in Amendment-C, applicant respectfully submits that the Examiner has failed to point to any evidence or motivation, *other than the claimed invention*, for combining the prior art references in the manners proposed in the claim rejections. The Examiner maintains that each of the limitations of the claimed invention are claimed by one or more of the prior art references and that there is motivation to combine such references. However, the Examiner, instead of pointing to any motivation within the references themselves, *points to the claimed invention* as proof that combining the main references is not hindsight, e.g., stating that the modification of allowing the brush to move vertically or horizontally would not make the device in operable since one of skill in the art would be able to modify the invention of Zehner so that the solvent would not drain out *as shown in the present invention*. Applicant respectfully submits that the Examiner's comment reflects use of impermissible hindsight, which the courts have long held to be improper. The Supreme Court's recent decision in **KSR v. Teleflex**, 550 U.S. ___, 127 S. Ct. 1727 (2007) does not change the prior law on this point and does not sanction the use

of impermissible hindsight in establishing obviousness under 35 USC 103. As such, applicant respectfully submits that an appropriate basis for rejection under 35 USC 103 has not been established by the Examiner.

Relative to item 3), applicant respectfully traverses the Examiner's assertion that Tsutsumi and Batchelder are reasonably pertinent to the problem addressed by the invention because the Examiner has *too broadly / unreasonably* posed the "problem" addressed by the invention beyond what is actually set forth in the application. The problem addressed by the present invention is not simply/generally the very abstract concept of cleaning residue from a surface using a brush or cleaning accumulated debris from cleaning brushes, but (again) the problem is/are the difficulties specifically encountered in sufficiently cleaning remnant coating solution from around the elongate discharge openings of slit-like nozzles. Tsutsumi and Batchelder do not pertain to such properly posed problems, and persons of ordinary skill in the art would not (in the first instance) have looked to either of these references even if such persons were considering the problems addressed by the present invention.

Although it is applicant's position that the Examiner has not established *prima facie* obviousness of the claimed invention, in an effort to expedite prosecution of the present application, again, applicant has amended the independent claims 1, 3 and 15 in order to further define that the slit-like discharge opening has a predetermined *great* width and that the nozzle discharges coating liquids such that the coating liquids are *dropped* onto a substrate surface, which is not disclosed or suggested by any of the references of record.

Based on the foregoing and the above amendments to claims 1 and 15, applicant respectfully submits that the Examiner's rejections of claims 1-2, 4-5, 8, 10-11 and 13-20 have been overcome, and it is respectfully requested that such rejections be reconsidered and withdrawn.

CONCLUSION

Based on all of the foregoing, applicant respectfully submits that all of the objections and rejections set forth in the Office Action are overcome, and that as presently amended, all of the pending claims are believed to be allowable over all of the references of record, whether considered singly or in combination. The applicant requests reconsideration and withdrawal of the rejection of record, and allowance of the pending claims.

If the Examiner is not fully convinced of all of the claims now in the application, applicant respectfully requests that the Examiner telephonically contact the applicant's undersigned representative to expeditiously resolve prosecution of the application.

Favorable consideration is respectfully requested.

Respectfully submitted,



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